

Maricopa County will hold a Public Hearing on this proposed permit on August 7, 2001 from 4:00 to 7:00 p.m. at Horizon High School (in the cafeteria), 5601 E. Greenway Rd., Scottsdale, AZ 85254.

For more information, contact Paul Gilman at (602) 506-6733 or Harry Chiu at (602) 506-6736.

**MARICOPA COUNTY
ENVIRONMENTAL SERVICES
DEPARTMENT**

**AIR QUALITY DIVISION
Phoenix, Arizona 85004
1001 North Central Avenue**

July 5, 2001

SUMITOMO SITIX SILICON INC
Attn: ROBERT HEPKER
19801 N TATUM BLVD
PHOENIX, AZ 85050

Permit Number: 000155
Business Name: SUMITOMO SITIX OF PHOENIX INC
Facility Address: 19801 N TATUM BLVD PHOENIX, AZ 85050

Arizona Revised Statutes §49-426 requires that public notice be given before an Air Quality Permit can be issued

As part of the process, this Department issues notice in the Arizona Business Gazette and the Record Reporter newspapers. The information in the public notice is contained in the enclosed Public Notice form.

A second requirement of the Statute is that the applicant post the public notice at the site where the source is or may be located: "If permitted by federal, state and local law, the posting shall be prominently placed at the site that is under the applicant's legal control and that is adjacent to the nearest public roadway. The posting shall be visible to the public using the public roadway." Therefore, a copy of the enclosed Public Notice must be posted and maintained by the applicant for the following period

Begin posting: **July 5, 2001**
End posting: **August 4, 2001**

If you have any questions, please give us a call at (602) 506-6094.

Sincerely,

Harry H. Chiu, P.E.

MANAGER, NON-TITLE V UNIT

PUBLIC NOTICE

Maricopa County Environmental Services Department, located at 1001 North Central Avenue, Phoenix, AZ 85004, has processed an application for the following facility and is proposing to issue an air quality permit.

Proposed permit number: 000155
Facility name and location: SUMITOMO SITIX OF PHOENIX INC
19801 N TATUM BLVD , PHOENIX, AZ 85050
Owner's name and address: SUMITOMO SITIX SILICON INC
19801 N TATUM BLVD , PHOENIX, AZ 85050
Type of facility: SILICON WAFER MANUFACTURING FACILITY
Air contaminants to be emitted: VOLATILE ORGANIC COMPOUNDS
PRODUCTS OF COMBUSTION
PARTICULATE MATTER
ACID AND ALKALINE FUMES
HAZARDOUS AIR POLLUTANTS

The application and proposed permit may be reviewed between the hours of 8:00 AM and 4:30 PM during normal business days by contacting the Custodian of Records, Mr. Ron Sands, at (602) 506-6201. Arrangements may be made through Mr. Sands to view the information at the Department location:

Main office: 1001 North Central Ave, Phoenix

There is a small fee for copying.

Additional information on the proposed permit may be obtained by contacting Donna Gilbert by phone at (602) 506-6094.

In accordance with §49-426 and §49-480 of the Arizona Revised Statutes (ARS), any person may submit to the Department at 1001 N Central Ave, Suite 200, Phoenix AZ, 85004, written comments and/or a written request for a public hearing on the proposed permit within 30 days after the first date of publication. Any written comment shall state the name and mailing address of the person, shall be signed by the person, his agent, or his attorney and shall clearly set forth reasons why the permit should or should not be issued. Grounds for comment are limited to whether the proposed permit meets the criteria for issuance as prescribed in ARS §49-426, §49-480, or §49-481.

Published: The Arizona Business Gazette
7/5/01
7/12/01
The Record Reporter
7/6/01
7/11/01

PERMIT CONDITIONS

SUMITOMO SITIX OF PHOENIX INC

Permit Number 000155

Date Issued:

Revision:

Revision Date:

The numerical section references in this Permit are based on Maricopa County Air Pollution Control Rules and Regulations (Rules) in effect on the date of issuance of these Permit Conditions. In the event that these Rules are revised to change the content and numerical references during the term of this Permit, the revised Rules and numbering system will apply to this permit.

GENERAL CONDITIONS:

1. **Certification:**

Any document which is required to be submitted by this Permit or the Rules shall contain certification by a responsible official of truth, accuracy and completeness. This certification shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate and complete.

[Rule 100, §200.95; Rule 220, §301.5 and §302.14]

2. **Confidentiality Claims:**

Except as provided for in Rule 100, any records, reports, or information obtained from the Permittee pursuant to the County Rules or this Permit shall be available to the public unless the Control Officer has notified the Permittee in writing and unless a person:

- a. Precisely identifies the information in the permit(s), records, or reports which is considered confidential.
- b. Provides sufficient supporting information to allow the Control Officer to evaluate whether such information satisfies the requirements related to trade secrets.

A claim of confidentiality shall not excuse a person from providing any and all information required or requested by the Control Officer and shall not be a defense for failure to provide such information.

[Rule 100, §200.107, §402 and Rule 200, §411]

3. **Controls:**

Except as provided by the applicable Rules or these Permit Conditions, the Permittee shall not operate any equipment or process unless air pollution controls, required by either this Permit or the Rules, are in place, are operating without bypass, and are operating within their design parameters and in accordance with any other conditions specified in this Permit. This requirement to operate any required air pollution control equipment may be conditionally waived due to malfunction in an emergency situation provided that the Permittee fulfills the notification requirement in accordance with Rules 100 and 220.

[Rule 220, §301.1 and §301.4]

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The Permittee shall notify the Control Officer, in accordance with Rule 220, before making any additions, modifications or replacements to any required air pollution control equipment. This notification requirement does not apply to normal maintenance and repair activities.

[Rule 220, §404 and §405]

4. **Duty to Supplement or Correct Application:**

The Permittee who fails to submit any relevant facts or who has submitted incorrect information in a permit application shall, upon becoming aware of such failure or incorrect submittal, promptly submit such supplementary facts or corrected information. In addition, an applicant shall provide additional information as necessary to address any requirements that become applicable to the source after the date it filed a complete application but prior to release of a proposed permit.

[Rule 220, §301.5]

5. **Duty to Comply:**

The Permittee shall comply with all conditions of this Permit including all applicable requirements of Federal laws, Arizona laws, and Maricopa County Air Pollution Control Rules and Regulations.

[Rule 200, §308]

The Permittee shall halt or reduce activities if necessary in order to maintain compliance with these Permit Conditions, all approved operations and maintenance plans, and all applicable requirements of Federal laws, Arizona laws, and Maricopa County Air Pollution Control Rules and Regulation.[Rule 220, §302.10]

6. **Fees:**

The Permittee shall pay, in a timely manner, an annual fee for this Permit as determined by the Control Officer in accordance with Rule 280.

[Rule 280, §302]

7. **Fugitive Dust:**

The Permittee shall take all reasonable precautions to minimize the emissions of fugitive dust in accordance with §300 of Rule 310.

[Rule 310, §300]

8. **Leased/Rented/Borrowed Equipment:**

If the Permittee leases, rents or lends any equipment covered by this Permit to a second party, the Permittee shall provide the second party with a copy of this Permit. It is the responsibility of the person using the equipment to make sure that the equipment is properly permitted and operated. If the Permittee does not provide the second party with a copy of this Permit, both the Permittee and the second party shall be responsible for operating the source in compliance with the Permit and for any violation thereof.

[Rule 200, §300]

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9. **Malfunctions (Emergency Upsets) and Excess Emissions:**
Emergencies, malfunctions, and other excess emissions shall be reported as required by Rule 100, Section 500.
[Rule 100, §400 and §500; Rule 130, §400; Rule 140, §400 and §500]
10. **Material Containment:**
Materials including, but not limited to, solvents or other volatile compounds, paints, acids, alkalies, pesticides, fertilizer and manure shall be processed, stored, used and transported in such a manner and by such means that they will not unreasonably evaporate, leak, escape or be otherwise discharged into the ambient air so as to cause or contribute to air pollution.
[Rule 320, §302]
11. **Modifications:**
The Permittee shall notify the Control Officer, in accordance with Rule 220, of changes, replacements or additions to the source which are not covered by this Permit.
[Rule 200, §312.3 and Rule 220, §400]
12. **Odors:**
The Permittee shall not emit gaseous or odorous air contaminants from equipment, operations or premises under his control in such quantities or concentrations as to cause air pollution.
13. **Permit Term, Permit Transfer, and Permit Renewal:**
 - a. This Permit shall remain in effect for no more than 5 years.
[Rule 220, §402]
 - b. Except as provided in Rule 200, this Permit may be transferred to another person if the person who holds the permit gives notice to the Control Officer in writing at least 30 days before the proposed transfer and complies with the permit transfer requirements of Rule 200 and the administrative permit amendment procedures pursuant to Rule 220.
[Rule 200, §400 and Rule 220, §405.1]
 - c. The Permittee shall file an application for a permit renewal at least six months, but not more than 18 months, before the expiration date of this Permit.
[Rule 220, §301.3a]
14. **Record Keeping:**
The Permittee shall maintain accurate records as required by these Permit Conditions and by Section 500 of all applicable Rules. These records shall be kept in a form, which allows easy verification of compliance with these Permit Conditions and any applicable Rules.

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All records shall be kept for the time as specified. All records required to demonstrate that each required air pollution control device is being operated properly shall be retained for five years.

All records required by this Permit should be made available for inspection upon request by a representative of the Control Officer.

Upon request, the Permittee shall furnish to the Control Officer copies of records required to be kept by this Permit.

[Rule 100, §504; Rule 220, §302.7; and §500 of All Applicable Rules]

15. Reopening For Cause:

This Permit shall be reopened or revised prior to expiration under any of the following conditions:

- a. Either the Control Officer or the Administrator of the United States Environmental Protection Agency (Administrator) determines that this Permit contains a material mistake or that inaccurate statements were made in establishing the emission standards or other terms or conditions of this Permit Revision, or
- b. Either the Control Officer or Administrator determines that this Permit must be revised or revoked to assure compliance with the applicable requirements.

[Rule 200, §402]

16. Reporting:

If notified, the Permittee shall submit an annual emissions inventory report to the Control Officer. The report shall summarize the activities and air pollution emissions from the facility during the previous calendar year in accordance with §505 of Rule 100. The report shall be filed on a form supplied by the Control Officer and shall be due by April 30 or 90 days after the Control Officer makes the forms available, whichever is later.

The Permittee shall furnish to the Control Officer, within a reasonable time, any information that the Control Officer may request in writing to determine whether cause exists for revising or revoking and reissuing this Permit or to determine compliance with this Permit.

Upon request, the Permittee shall furnish to the Control Officer copies of records required to be kept by this Permit.

The Permittee shall file any additional reports required by the Control Officer in a complete and timely manner.

[Rule 100, §501 and §505; Rule 220, §302.8 and §302.13]

17. Right to Entry:

The authorized representative of the Control Officer, upon presentation of credentials, shall be permitted:

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- a. To enter upon the premises where the source is located or emission-related activity is conducted, or where records are required to be kept under the conditions of this Permit and,
- b. To have access to and copy, at reasonable times, any records that are required to be kept under the conditions of this Permit, and
- c. To inspect, at reasonable times, any source(s), equipment (including monitoring and air pollution control equipment), practices or operations regulated or required under the Permit, and
- d. To sample or monitor, at reasonable times, substances or parameters for the purpose of assuring compliance with the Permit or other applicable requirements, and
- e. To record any inspection by use of written, electronic, magnetic, and photographic media.

No claim of confidentiality for trade secrets or commercial information available to the Permittee under Arizona Revised Statutes (ARS) 49-487 or Rule 200 §400 can limit the scope of or otherwise interfere with an on-site inspection by a representative of the Control Officer. However, a claim of confidentiality may be made on any information gathered during the inspection to the extent identified in ARS 49-487 or Rule 200 §400.

[Rule 100, §200.107 and §402; Rule 200, §411; Rule 220, §302.17-21]

18. **Rights and Privileges:**

This Permit does not convey any property rights nor exclusive privileges of any sort.

[Rule 220, §302.12]

19. **Severability:**

The provisions of this Permit are severable, and, if any provision of this Permit is held invalid, the remainder of this Permit shall not be affected thereby.

[Rule 220, §302.9]

20. **Start-up Notification:**

If a performance test is required, the Permittee shall give written notification to the Department, Attention Source Test Compliance Section Manager, at least 7 days but no more than 30 days before the initial start-up of any new pollution abatement equipment or process that requires a test. Start-up of the subject equipment or process, shall be defined as the earliest occurrence of one of the following dates:

- a. The date that achieved maximum (or permitted) capacity occurs; or
- b. The date that a marketable product has been produced; or

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- c. The date that achieved sustained product manufacturing occurs; or
- d. The date that the production line(s) or processes, exhausted to the air pollution abatement equipment that require the test, have been qualified to produce product that meets customer requirements.

This startup notification does not apply to processes or equipment recognized by the Control Officer as being trivial or insignificant activities.

[Rule 270, §400]

SPECIFIC CONDITIONS:

21. ALLOWABLE EMISSIONS:

The Permittee shall not allow emissions into the atmosphere to exceed any of the following limits:

	Daily Emission Limits	Monthly Emission Limits	Twelve Month Rolling Average Emission Limits
TOTAL HAZARDOUS AIR POLLUTANTS (HAPS)	N/A	1000.00 POUNDS	5.00 TONS
ANY SINGLE HAZARDOUS AIR POLLUTANT (HAP)	N/A	250.00 POUNDS	1.50 TONS
NITROGEN OXIDE (NOX)	N/A	7300.00 POUNDS	24.00 TONS
PARTICULATE MATTER < 10 MICRON DIAM. (PM-10)	N/A	550.00 POUNDS	2.50 TONS
CARBON MONOXIDE (CO)	N/A	2550.00 POUNDS	10.00 TONS
SULFUR OXIDE (SOX)	N/A	1600.00 POUNDS	1.00 TONS
VOLATILE ORGANIC COMPOUNDS (VOC)	N/A	2675.00 POUNDS	16.00 TONS

The twelve month rolling total emission shall be calculated within 15 days following the end of each calendar month by summing the emissions over the most recent twelve calendar months.

A regulated HAP shall mean a hazardous air pollutant listed in Section 112(b) of the Clean Air Act.

22. Operations and Maintenance Plan (O&M Plan):

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- a. The Permittee shall obtain approval from the Department for an O&M Plan for each of the following emissions control devices:

Regenerative Thermal Oxidizer
Three-Stage NOx/Acid Scrubbers
Single-Stage Acid Scrubber
Single-Stage Alkali Scrubber
Boilers With Low NOx Burners
Waste Gas Point of Use Burn Boxes
Crystal Furnace Point of Use Particulate Filters
Grit Mix Hopper Particulate Filters
Any Additional Air Pollution Control Systems Added At a Future Date

Each O&M Plan shall be prepared in accordance with the Department's guidelines and shall be submitted to the Air Quality Compliance Manager of this Department within 45 days after the issuance of this permit unless the O&M Plan for the emissions control device was submitted and approved less than two years prior to the date of permit issuance;

- b. Each O&M Plan shall include requirements for training employees who are responsible for operating or maintaining the emission control devices and the associated process equipment;
- c. As part of each O&M Plan, the Permittee shall establish appropriate ranges for the key operating parameters for the emission control devices and the associated process equipment. The Permittee shall monitor, operate and maintain the emissions control devices in accordance with the approved O&M Plan to ensure that the emissions limitations of these Permit Conditions are not exceeded.

23. **Solvent Cleaning Applicable Requirements:**

The Permittee shall comply with the requirements of Maricopa County Environmental Services Department (MCESD) Rule 331 for solvent cleaning of equipment or parts that is performed for purposes other than semiconductor manufacturing processes and shall otherwise comply with applicable provisions of MCESD Rule 338. The Permittee shall operate solvent cleaning stations which contain more than 10% VOC materials, in accordance with all of the applicable requirements of Rule 331 or Rule 338.

24. **Material Limitations:**

VOC containing solvents used to clean silicon wafer manufacturing and processing equipment shall meet at least one of the following requirements:

- a. The VOC content of the solvent shall not exceed 200 gr/l (1.7 lbs/gallon); or
- b. The VOC composite partial pressure shall not exceed 33 mm Hg at 20°C (68°F); or

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- c. The components being cleaned are totally enclosed during washing, rinsing, and draining such that no greater than 50 ppm (220 mg/m³) of VOC emissions are detected using the method as defined in Rule 338 §503.5.
25. **Alternative Compliance for Solvent Processes:**
The Permittee is allowed to meet all of the requirements of Permit Conditions 23 and 24 by using at least one of the following applications:
- a. An emission control system (ECS) that achieves an overall control efficiency as required under Rule 338, Section 301; or
 - b. An air-tight or airless system that both is sealed during cleaning and drying and has a sealed, self-contained liquid-solvent recovery system; or
 - c. Solvents that contain less than 10% VOC by weight.
26. **Record Keeping:**
The Permittee shall maintain records of all required monitoring data and supporting information for each control device and applicable process equipment, records of equipment maintenance and records of equipment malfunctions resulting in air pollutant emissions. These records shall be available for review by MCESD and shall include the following:
- a. A facility log as required by MCESD Rule 220, Section 400, and in the format required by MCESD Rule 220, Section 500.
 - b. Monthly natural gas fuel usage records for the facility;
 - c. Monthly chemical usage records for all materials used at the facility that are classified as VOCs in accordance with MCESD Rule 338, Sections 502.1 and 502.2.
 - d. A list of all other process chemicals used, the monthly chemical use records and emission calculations in order to determine compliance with applicable emissions limitations are prescribed by Permit Condition 21. Backup documentation demonstrating the technical validity of the emissions factors, including emissions test data and related calculations, also shall be available as prescribed by Appendix B of the Permit Application. The Permittee may amend the emission factor contained in Appendix B of the Permit Application when it can be demonstrated to the Control Officer that a different emission factor will result in a more accurate determination of emissions.
 - e. Records for the natural gas fired boilers as specified in 40 C.F.R. Part 60, Subpart Dc.

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- f. Monthly records of fuel usage and records of the sulfur content of the fuel used in the boilers, emergency generators and emergency fire pumps, daily run times for each emergency generator and emergency fire pump, including the date, cumulative hourly run time for that date, meter readings, reason for operating and total cumulative run time for each emergency generator and emergency fire pump based on a 12-month rolling total.
- g. Records detailing all control device operating parameters needed to demonstrate proper operation of a required control device as specified in Permit Condition 29, as well as other records required to be maintained pursuant to that section.
- h. Records required to show compliance with the conditions of the Operations and Maintenance Plan prescribed by Permit Condition 22 of this Permit.
- i. Temperature measured in the combustion/oxidizing zone of the regenerative thermal oxidizer as required to demonstrate compliance with the requirements of Permit Condition 29(a).

27. Reporting:

- a. Notification of commencement of construction and startup of equipment subject to 40 CFR Part 60 New Source Performance Standards shall be submitted to the Control Officer as required by 40 CFR 60.7.
- b. Copies of the facility logs required pursuant to MCESD Rule 220, Section 400, shall be filed within 30 days after each anniversary of the permit issue date. If no changes were made at the source requiring logging, a statement to that effect shall be filed instead.

28. Emission Calculations:

The Permittee shall prepare a monthly emission report to be kept on-site for inspection upon request. The twelve-month rolling total emissions shall be calculated within 15 days following the end of each calendar month by summing the emissions over the most recent twelve calendar months. The Permittee shall use the methods prescribed by Appendix B of the Permit Application on a monthly basis to calculate the twelve-month rolling average emissions of the pollutants listed in Permit Condition 21. The Permittee may amend the emission factor contained in Appendix B of the Permit Application when it can be demonstrated to the Control Officer that a different emission factor will result in a more accurate determination of emissions.

29. Emission Control Device Parameters:

The Permittee shall operate and maintain emissions control devices in accordance with the following:

- a. Regenerative Thermal Oxidizer (SC-212):

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1. The regenerative thermal oxidizer (RTO), or any other equally effective VOC emissions control device approved by the Department, shall be operating and fully operational when VOC containing exhaust streams from VOC producing process areas are being exhausted to it.
 2. The Permittee shall monitor, operate and maintain the RTO in accordance with the Department approved O&M Plan to ensure that the emissions limitations of these Permit Conditions are not exceeded.
 3. In the event the RTO malfunctions, the Permittee must notify the Department within 24-hours of the malfunction and provide the Department an estimate, for Department approval, of the period of time necessary for repairs to be completed. The Permittee shall calculate and make available for review by a department representative the type of and quantity of uncontrolled emissions emitted during the malfunction.
 4. The RTO shall have a combustion zone temperature greater than or equal to that recorded during the most recent performance testing that demonstrated compliance with the VOC destruction efficiency requirement in Permit Condition 31. This minimum combustion zone temperature shall be maintained during normal operations unless the Permittee can demonstrate through future testing, acceptable to the Control Officer, that the required destruction efficiency can be met at a lower temperature.
- b. Wet Scrubbers:
1. The wet scrubbers, or any other equally effective emissions control device approved by the Department, shall be operating and fully operational when any acid, caustic and/or hydride gas (silane) exhaust streams and/or other processes capable of producing air pollutant emissions are being exhausted to them.
 2. The Permittee shall monitor, operate and maintain the wet scrubbers in accordance with the Department approved O&M Plan(s) to ensure that the emissions limitations of these Permit Conditions are not exceeded. For acid and caustic wet scrubbers, the monitoring shall include, but not be limited to, water flow rate, pH of recirculating water and total pressure drop across the system. For three-stage NOx/acid wet scrubbers, the monitoring shall include, but not necessarily be limited to, water flow rate, pH of recirculating water, pressure drop across each stage of the system and oxidation-reduction potential (ORP). These parameters shall be recorded for each of the three stages.

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3. In the event one or more of the wet scrubbers malfunctions, the Permittee must notify the Department within 24-hours of the malfunction and provide the Department an estimate, for Department approval, of the period of time necessary for repairs to be completed. The Permittee shall calculate and make available for review by a department representative the type of and quantity of uncontrolled emissions emitted during the malfunction.
 - c. **Particulate Filters:**
 1. The Permittee shall monitor, operate and maintain all process related particulate filters in accordance with the approved Operations and Maintenance Plan (O&M Plan) to ensure that the emissions limitations of these Permit Conditions are not exceeded.
 2. The particulate filters shall be regularly cleaned and inspected. If there are no holes, gaps, or other signs of failure, the filter may be reused. If the filter shows signs of failure or is damaged in other ways, it shall be replaced.
 - d. **Low NOx Burner Boilers:** The flame detection system and igniter/burner operation shall be monitored and maintained within manufacturers specifications.
30. **Point of Use (POU)/Exhaust Conditioner (EC) Units:**
- a. EC units interlocked with the low pressure chemical vapor deposition (LPCVD) process tools shall be operating and fully operational when LPCVD tools are processing silicon wafers, shall be exhausted to an operating and fully operational wet scrubber or other control device approved by the Control Officer and shall not require an O&M Plan. However, if an emission reduction is claimed for the EC units, the Permittee shall demonstrate an adequate maintenance and calibration (AMC) for the subject EC units per MCESD guidance document "Optional Compliance Demonstrations - Part II, Procedure to Determine Requirement for Operation and Maintenance Plan, Point of Use/Exhaust Conditioner Units", dated June 4, 2001, or the most current revised version at the time of the issuance of this permit.
 - b. EC units associated with the process tool, if installed on future LPCVD reactors that are installed after the effective date of this permit, shall not require an O&M Plan. However, if an emission reduction is claimed for the EC units, the Permittee shall demonstrate an adequate maintenance and calibration (AMC) for the subject EC units per MCESD guidance document "Optional Compliance Demonstrations - Part II, Procedure to Determine Requirement for Operation and Maintenance Plan, Point of Use/Exhaust Conditioner Units", dated June 4, 2001, or the most current revised version at the time of the issuance of this permit.

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- c. The Permittee shall submit an O&M Plan for any future type of POU unit that is installed without an interlock shutdown system as stipulated in the MCESD guidance document "Optional Compliance Demonstrations - Part II, Procedure to Determine Requirement for Operation and Maintenance Plan, Point of Use/Exhaust Conditioner Units", dated June 4, 2001, or the most current revised version at the time of the issuance of this permit. The O&M Plan shall be submitted within 45 days of the start-up of newly installed POU units.
31. **Performance Testing:**
The Permittee shall conduct performance testing of the "Airex" regenerative thermal oxidizer (SC-212), the "Viron" three-stage NOx/acid scrubber (SC-203), the "Viron" three-stage NOx/acid scrubber (SC-107), the "Viron" single-stage acid scrubber (SC-201), and one "Kewannee" boiler stack prior to July 30, 2003.
- a. **Regenerative Thermal Oxidizer (SC-212):**
 - 1. Testing shall be performed to determine stack emission rates of volatile organic compounds (VOC), carbon monoxide (CO) and nitrogen oxides (NOx). Testing shall also be performed in order to demonstrate a minimum of 90% by weight VOC destruction efficiency (outlet/inlet). The testing shall be performed with the process equipment, that is exhausted to the RTO, operating at the maximum hourly production rate desired by the Permittee in order to obtain emission rates for reporting purposes. The testing shall be conducted in accordance with all applicable USEPA approved test procedures;
 - 2. The Permittee shall submit a test protocol to the Department Source Test Compliance Section for review and approval at least 30 days prior to the performance test. A fee for each stack to be tested, as required by Rule 280, shall be submitted with the test protocol;
 - 3. The Permittee shall notify the Department Source Test Compliance Section in writing at least two weeks in advance of the actual time and date of the performance test so that the Department may have a representative attend;
 - 4. The Permittee shall complete and submit a report to the Department Source Test Compliance Section within 30 days after completion of the performance test. The report shall summarize the results of the testing in sufficient detail to allow a compliance determination to be made.
 - b. **Three-Stage NOx/Acid Scrubber (SC-203):**

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1. Testing shall be performed to determine the stack emission rate of nitrogen oxides (NO_x), to demonstrate a minimum 80% by weight removal efficiency (outlet/inlet) for NO_x, and to perform a quantitative analysis of the stack exhaust for PM₁₀. Testing shall also be performed in order to demonstrate a minimum of 90% by weight removal efficiency for hydrofluoric acid (HF) and nitric acid (HNO₃). After the completion of the performance test, should the Permittee find the required performance test inadequate to demonstrate compliance, the Permittee may demonstrate compliance by meeting emission reduction requirements as stipulated in the MCESD guidance document "Optional Compliance Demonstrations Procedure - Part 1", dated May 4, 2001, or the most current approved version at the time of testing. The testing shall be performed with the process equipment, that is exhausted to the three-stage NO_x/acid scrubber SC-203, operating at the maximum hourly production rate desired by the Permittee in order to obtain emission rates for reporting purposes. The testing shall be conducted in accordance with all applicable USEPA approved test procedures;
 2. The Permittee shall submit a test protocol to the Department Source Test Compliance Section for review and approval at least 30 days prior to the performance test. A fee for each stack to be tested, as required by Rule 280, shall be submitted with the test protocol;
 3. The Permittee shall notify the Department Source Test Compliance Section in writing at least two weeks in advance of the actual time and date of the performance test so that the Department may have a representative attend;
 4. The Permittee shall complete and submit a report to the Department Source Test Compliance Section within 30 days after completion of the performance test. The report shall summarize the results of the testing in sufficient detail to allow a compliance determination to be made.
- c. Three-Stage NO_x/Acid Scrubber (SC-107):

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1. Testing shall be performed to determine the stack emission rate of nitrogen oxides (NO_x), to demonstrate a minimum 80% by weight removal efficiency (outlet/inlet) for NO_x, and to perform a quantitative analysis of the stack exhaust for PM₁₀. Testing shall also be performed in order to demonstrate a minimum of 90% by weight removal efficiency for hydrofluoric acid (HF) and nitric acid (HNO₃). After the completion of the performance test, should the Permittee find the required performance test inadequate to demonstrate compliance, the Permittee may demonstrate compliance by meeting emission reduction requirements as stipulated in the MCESD guidance document "Optional Compliance Demonstrations Procedure - Part 1", dated May 4, 2001, or the most current approved version at the time of testing. The testing shall be performed with the process equipment, that is exhausted to the three-stage NO_x/acid scrubber SC-107, operating at the maximum hourly production rate desired by the Permittee in order to obtain emission rates for reporting purposes. The testing shall be conducted in accordance with all applicable USEPA approved test procedures;
 2. The Permittee shall submit a test protocol to the Department Source Test Compliance Section for review and approval at least 30 days prior to the performance test. A fee for each stack to be tested, as required by Rule 280, shall be submitted with the test protocol;
 3. The Permittee shall notify the Department Source Test Compliance Section in writing at least two weeks in advance of the actual time and date of the performance test so that the Department may have a representative attend;
 4. The Permittee shall complete and submit a report to the Department Source Test Compliance Section within 30 days after completion of the performance test. The report shall summarize the results of the testing in sufficient detail to allow a compliance determination to be made.
- d. Single-Stage Acid Scrubber (SC-201):

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1. Testing shall be performed in order to demonstrate a minimum of 90% by weight removal efficiency for hydrochloric acid (HCl) and hydrofluoric acid (HF). After the completion of the performance test, should the Permittee find the required performance test inadequate to demonstrate compliance, the Permittee may demonstrate compliance by meeting emission reduction requirements as stipulated in the MCESD guidance document "Optional Compliance Demonstrations Procedure - Part 1", dated May 4, 2001, or the most current approved version at the time of testing. The testing shall be performed with the process equipment, that is exhausted to the single stage acid scrubber SC-201, operating at the maximum hourly production rate desired by the Permittee in order to obtain emission rates for reporting purposes. The testing shall be conducted in accordance with all applicable USEPA approved test procedures;
 2. The Permittee shall submit a test protocol to the Department Source Test Compliance Section for review and approval at least 30 days prior to the performance test. A fee for each stack to be tested, as required by Rule 280, shall be submitted with the test protocol;
 3. The Permittee shall notify the Department Source Test Compliance Section in writing at least two weeks in advance of the actual time and date of the performance test so that the Department may have a representative attend;
 4. The Permittee shall complete and submit a report to the Department Source Test Compliance Section within 30 days after completion of the performance test. The report shall summarize the results of the testing in sufficient detail to allow a compliance determination to be made.
- e. "Kewannee" Boiler:
1. The Permittee shall conduct and complete performance testing on one of the two "Kewannee" boilers. Testing shall be performed to determine stack emission rates of carbon monoxide (CO) and nitrogen oxides (NO_x). The testing shall be performed with the "Kewannee" boiler operating at the maximum capacity desired by the Permittee in order to obtain emission rates for reporting purposes. The testing shall be conducted in accordance with all applicable USEPA approved test procedures;
 2. The Permittee shall submit a test protocol to the Department Source Test Compliance Section for review and approval at least 30 days prior to the performance test. A fee for each stack to be tested, as required by Rule 280, shall be submitted with the test protocol;

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3. The Permittee shall notify the Department Source Test Compliance Section in writing at least two weeks in advance of the actual time and date of the performance test so that the Department may have a representative attend;
4. The Permittee shall complete and submit a report to the Department Source Test Compliance Section within 30 days after completion of the performance test. The report shall summarize the results of the testing in sufficient detail to allow a compliance determination to be made.

32. Emergency Power Generators:

- a. Except for routine maintenance, testing and construction activities, emergency power generators (including temporary rental and/or leased generators) shall be used only when normal power line service fails or when normal power line service must be turned off for preventive maintenance. Emergency generators shall not be used for peak shaving or if the power interruption is due to a voluntary usage reduction by the Permittee.
- b. The emergency power generators shall be limited to 4000 pounds of annual emissions for NO_x or CO.
- c. Diesel fuel used to fuel the engines shall have a maximum sulfur content of 0.5 percent by weight as certified by the supplier.

33. External Combustion Sources:

The Permittee may only use natural gas, butane and/or propane as fuels for permitted boilers, heaters and/or the thermal oxidizer. In the event of a temporary suspension of the delivery of natural gas, petroleum distillate fuel may be used as an alternative fuel for the boilers. The fuel shall have a maximum sulfur content of 0.5 percent by weight as certified by the supplier.

34. VOC Containment, Labeling and Disposal:

The Permittee shall not store, discard, or dispose of VOCs or VOC-containing material in a way intended to cause or to allow the evaporation of VOCs to the atmosphere. Reasonable measures shall be taken to prevent such evaporation, which include but are not limited to the following:

- a. All materials from which VOCs can evaporate, including fresh solvent, waste solvent and solvent-soaked rags and residues, shall be stored in closed containers or impermeable bags when not in use;
- b. Such containers one gallon and larger shall be identifiable by label or color coding;
- c. Records of the disposal/recovery of such materials shall be kept. Records of disposal shall comply with MCESD Rule 338, Section 502.3;

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- d. All containers and mixing tanks containing VOCs shall be determined to be free of defects which might cause leakage and shall be kept covered except when the materials are being transferred or when the containers are being cleaned.
- 35. **Training - General:**
The Permittee shall fully train all individuals before they are allowed to operate and/or maintain emissions producing process equipment and/or any associated emissions control device(s).
- 36. **Visible Emissions:**
The requirements and conditions of Rule 300 shall apply to the Permittee. The Permittee shall not discharge in to the ambient air, from any single source of emissions, any air contaminant, other than uncombined water, in excess of 20%.

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Equipment Description	Rated Capacity	Quantity Exist/Future
1. CLEANER - REMELT MATERIAL ACID CLEAN (#A03) AND RINSE (#A08), HF, HNO3, EXHAUST TO SC-107		1 /
2. FURNACE - "CZ" SILICON INGOT PULLERS (#B01), POLYSILICON, EXHAUST TO CZ 2290 CARTRIDGE PARTICULATE FILTERS, EACH WITH DEDICATED VACUUM PUMPS (#'S B04)		60 /
3. ETCHER - SAMPLE ETCH DRAFT SAMPLER ETCHER(#C19), HF, HNO3, EXHAUST TO SC-203		1 /
4. ETCHER - V-ETCH BLOCK ETCHER (#C20), HF, HNO3, EXHAUST TO SC-203		1 /
5. DRYER - CURE OVEN (#G03), EF-223 EXHAUST	.00	1 /
6. ADHESIVE PROCESS - EPOXY DISPENSER (#G05), TWO PART EPOXY/SILICON BLOCK, EF-223 EXHAUST		2 /
7. ADHESIVE PROCESS - MANUAL ADHESION HOOD (G07), TWO PART EPOXY, EF-223 EXHAUST		1 /
8. WAFER CLEANING - SLICE INGOT CLEAN, AUTO CLEAN (#H03), EXHAUST TO SC-212		1 /
9. WAFER CLEANING - MANUAL SLICE CLEAN (#H-27), EXHAUST TO SC-212		1 /
10. WAFER SHAPING - LAPPERS, LAP SLURRY MIXING SYSTEM (1 MIXER) EXHAUST TO PARTICLE FILTER >90% EFFICIENCY		12 /
11. WAFER PROCESSING - WAFER PROTECTION/LAP WAX, EXHAUST TO SCRUBBER		1 /
12. WAFER CLEANING - BEVEL CLEAN (J01), DETERGENT, CAUSTIC, PEROXIDE, EXHAUST TO SC-202		1 /
13. WAFER CLEANING - ETCH CLEAN (J-02), CAUSTIC, PEROXIDE, EXHAUST TO SC-202		1 /
14. WAFER ETCH - ACID ETCH (J-05), EXHAUST TO SC-203		2 /
15. WAFER ETCH - MIXED ACID DRAFT (J06), EXHAUST TO SC-201		/
16. WAFER PROCESSING - BACKSIDE DAMAGE PROCESS (J10/J30), ABRASIVE SLURRY BLAST, SLURRY TANK, EXHAUST TO SC-202		11 /
17. WAFER PROCESSING - BACKSIDE DAMAGE CLEAN (J04), CAUSTIC/PEROXIDE - EXHAUST TO SC-202, HF - EXHAUST TO SC-201		/
18. WAFER PROCESSING - BACKSIDE DAMAGE - LPCVD/CHEMICAL VAPOR DEPOSITION (J13), SIH4, EXHAUST TO BURN BOX & SC-208		5 /
19. WAFER PROCESSING - BACKSIDE DAMAGE - APCVD/CHEMICAL VAPOR DEPOSITION (J14), SIH4, EXHAUST TO SC-208		4 /
20. QUARTZ CLEANER - CLEAN CVD QUARTZ EQUIPMENT (J20), HF, HNO3, EXHAUST TO SC-203		1 /
21. WAFER ETCH - NODULE ETCH (J17), HF, EXHAUST TO SC-201		4 /
22. WAFER ETCH - RINSE/OXIDE STRIP (J18), HF, H2O, EXHAUST TO SC-201		/
23. WAFER PROCESSING - WAXCOATER AND DISPENSER (J25), VOC THINNER, EXHAUST TO SC-212		4 /

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Equipment Description	Rated Capacity	Quantity Exist/Future
24. WAFER POLISH - AN CLEAN (J26), CAUSTIC/PEROXIDE, HF, EXHAUSTIC TO SC-201 & SC-202		1 /
25. WAFER POLISH - EM CLEAN (J27), VOC/NMP, EXHAUST TO SC-212		1 /
26. WAFER PROCESSING - WAX COATER/DISPENSER, MP (J41), VOC, EXHAUST TO SC-212		4 /
27. CLEANER - MIRROR POLISH CHUCK CLEANER (K15), NAOH, EXHAUST TO SC-202		1 /
28. CLEANER - MIRROR POLISH CHUCK CLEANER (K17), C2H5OH, EF-218 EXHAUST		1 /
29. WAFER CLEANING - AUTO PRECLEAN (L01), ACID WASH, EXHAUST TO SC-201		1 /
30. WAFER CLEANING - AUTO PRECLEAN (L03), CAUSTIC/PEROXIDE, EXHAUST TO SC-202		1 /
31. WAFER CLEANING - AUTO FINAL CLEAN LOAD (L05), NH4OH, PEROXIDE, HF, EXHAUST TO SC-201, SC-202		1 /
32. WAFER CLEANING - AUTO FINAL CLEAN UNLOAD (L06), NH4OH, PEROXIDE, HF, EXHAUST TO SC-201, SC-202		1 /
33. CLEANER - MANUAL ALPHA/BASKET CLEAN/SC1 PRECLEAN (L08/L12), CAUSTIC, PEROXIDE, EXHAUST TO SC-202		1 /
34. CLEANER - MANUAL ACID CLEAN/SC2 NAC FINAL CLEAN (L10), HF, EXHAUST TO SC-201		1 /
35. CLEANER - MANUAL WAX CLEAN (L13), SOLVENT CLEAN/C2H5OH, EXHAUST TO SC-212		1 /
36. WAFER ETCH - SAMPLE ETCH/DASH ETCH (N11), ACID MIX HOOD (N12), HNO3, HF, EXHAUST TO SC-201, SC-203		1 /
37. WAFER ETCH - SAMPLE ETCH/WRIGHT ETCH (N33), ACID MIX HOOD (N35), HNO3, HF, ACETIC ACID, EXHAUST TO SC-201, SC-203		1 /
38. WAFER ETCH - SAMPLE ETCH (N23), HNO3, HF, EXHAUST TO SC-203		1 /
39. WAFER PROCESSING - GROWING DEFECT BENCH (N44), HF, EXHAUST TO SC-201		1 /
40. QUARTZ CLEANER - FURNACE TUBE CLEAN (N13), HF, EXHAUST TO SC-201		/
41. SCRUBBER - "VIRON" SINGLE STAGE ACID SCRUBBER (SC-201)	22,800.00 CFM	1 /
42. SCRUBBER - "VIRON" SINGLE STAGE ALKALI SCRUBBER (SC-202)	24,700.00 CFM	1 /
43. SCRUBBER - "VIRON" THREE STAGE ACID/NOX SCRUBBER (SC-203)	9,600.00 CFM	1 /
44. THERMAL/REGENERATIVE OXIDIZER - "AIREX" (SC-212), 11,500 CFM	2,000,000.00 BTU/HR	1 /
45. SCRUBBER - "VIRON" THREE STAGE ACID/NOX SCRUBBER (SC-107)	2,100.00 CFM	1 /
46. SCRUBBER - "HARRINGTON" SINGLE STAGE ACID SCRUBBER (SC-208)	7,935.00 CFM	1 /
47. SCRUBBER - "VIRON" SINGLE STAGE ACID SCRUBBER (SC-009)	2,000.00 CFM	1 /
48. POINT-OF-USE DEVICE - "ECOSYS" CVD BURN BOXES (ACO701, ACO702), EXHAUST TO SCRUBBER SC-208		9 /

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Equipment Description	Rated Capacity	Quantity Exist/Future
49. FILTER - "SPARKS" CARTRIDGE PARTICULATE FILTERS FOR CZ FURNACES (CZ 2290)	2,000.00	60 /
50. FILTER - "PRECISIONAIRE" GRIT MIX PARTICULATE FILTERS	500.00	2 /
51. BOILER - "KEWANEE", LOW NOX BURNER, NATURAL GAS FIRED, DISTILLATE BACK-UP	41.90 MM BTU/HR	2 /
52. GENERATOR - "CATERPILLAR" EMERGENCY GENERATOR, DIESEL, 1008 HP	750.00 KW	1 /
53. GENERATOR - "CATERPILLAR" EMERGENCY GENERATOR, DIESEL, 1676 HP	1,250.00 KW	1 /
De Minimis Equipment:		
54. PUMP - "WILLIAMS DETROIT DIESEL", FIRE PUMPS	265.00 HP	2 /
55. SAW - ID SAW (H01), FLUID PROCESS		1 /
56. SAW - WIRE SAW (H02), FLUID PROCESS		1 /
57. CLEANER - MANUAL ID SAW CLEAN (H18), NAOH		1 /
58. WAFER CLEANING - WAFER CLEAN (H04), AQUEOUS DETERGENT		1 /
59. WAFER SHAPING - BEVEL 1 (H07), LIQUID SPRAY COOLANT GRIND PROCESS		8 /
60. WAFER SHAPING - BEVEL 2 (H08), LIQUID SPRAY COOLANT GRIND PROCESS		12 /
61. WAFER CLEANING - BEVEL CLEAN (J01), AQUEOUS DETERGENT, CAUSTIC, H2O2		1 /
62. WAFER CLEANING - ETCH CLEAN (J02), CAUSTIC, H2O2		1 /